



VCNP:

12-15 mile wide caldera.

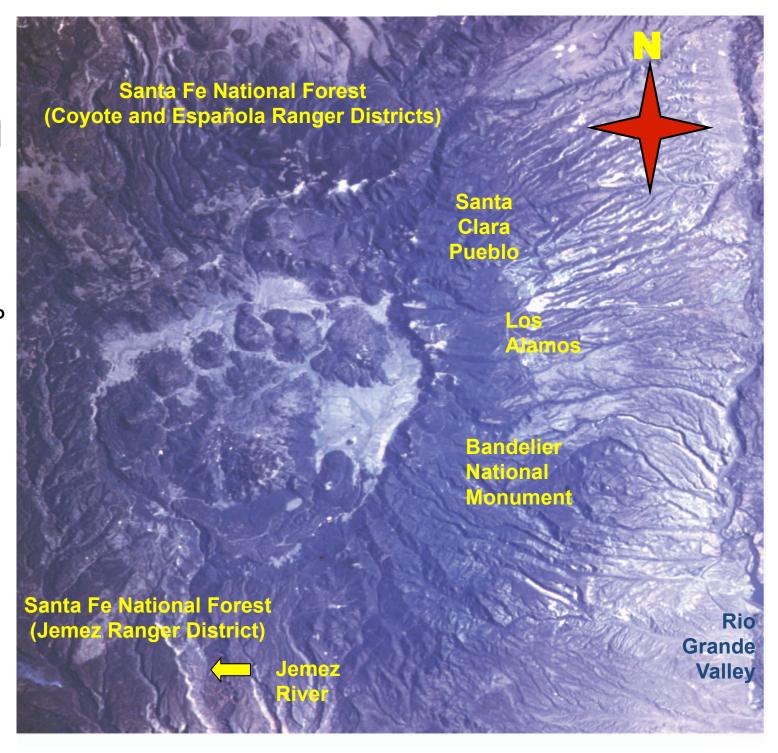
Formed 1.2 million yrs ago.

~65% forest, ~35% grassy valles.

Top of the watershed for 4 major tributaries of the Jemez River.

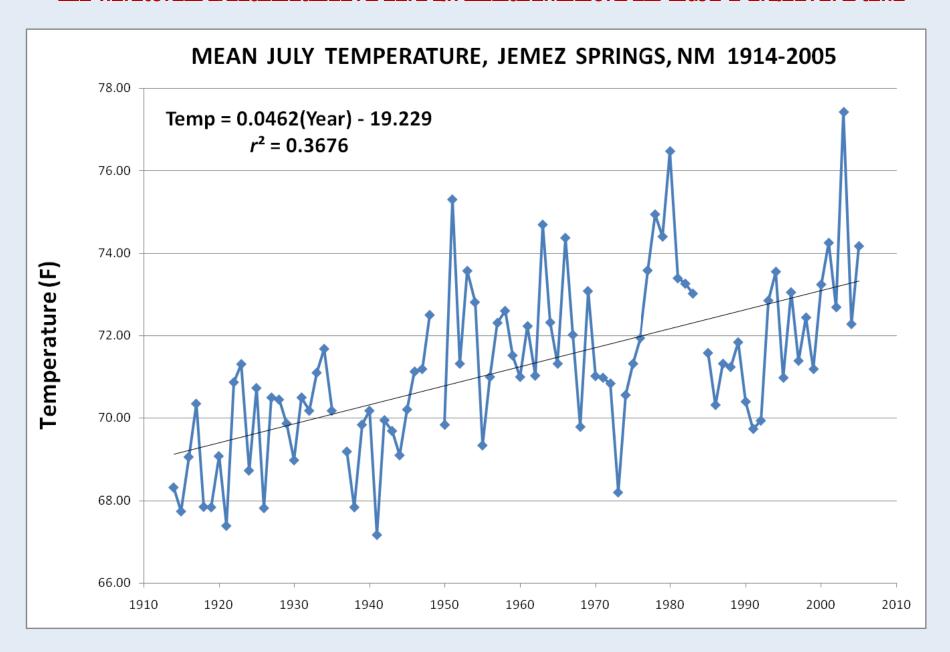
Satellite image of VCNP and Rio Grande (right).

Note main VCNP drainage is southward along the Jemez River.



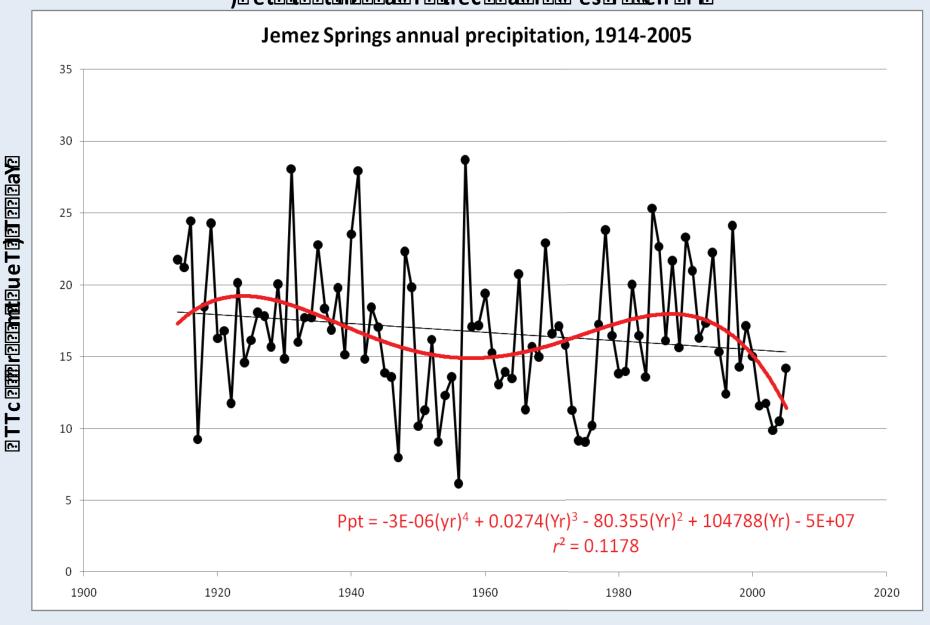


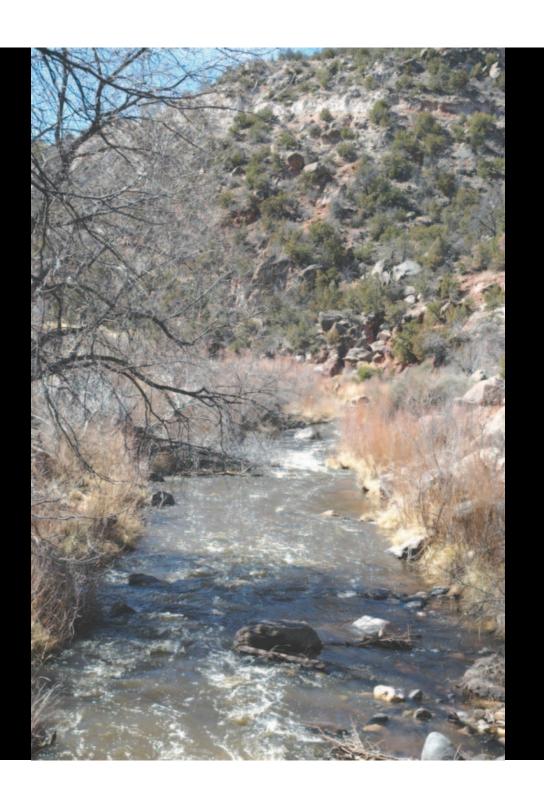






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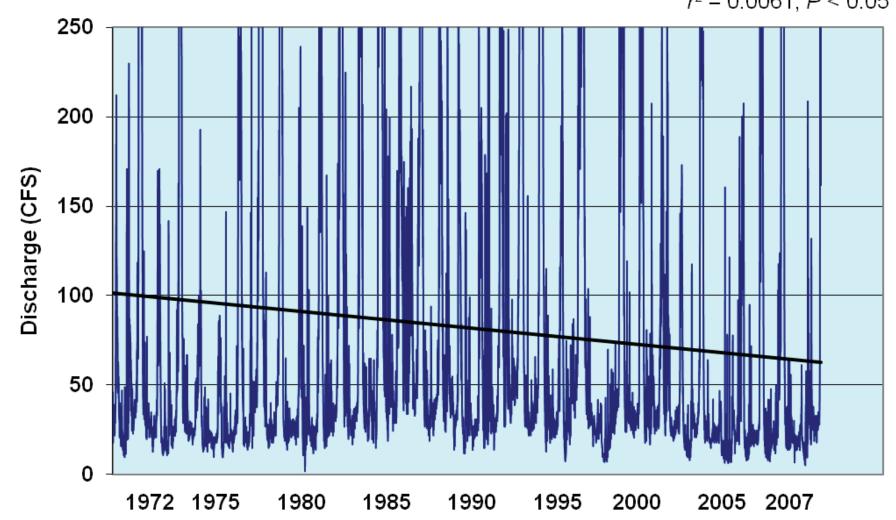




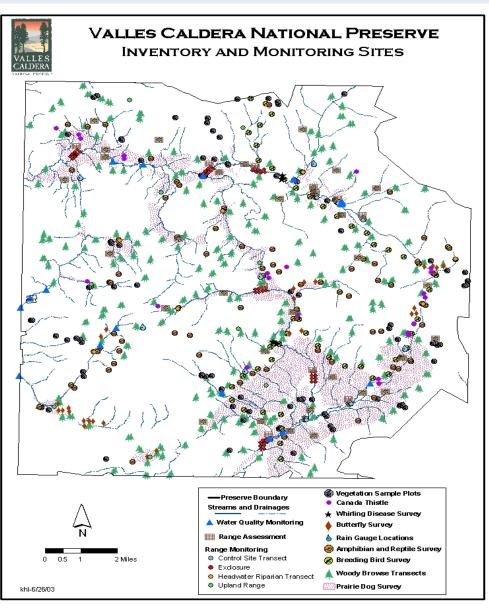


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y = -0.003x + 101.57 $r^2 = 0.0061, P < 0.05$



VCNP Monitoring Programs Wildlife Recreation Prescribed Fires/ Thinning Livestock





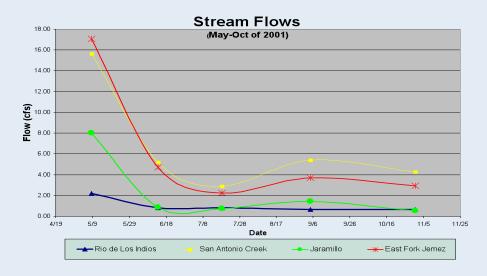


Climate monitoring: Precipitation, temperature, humidity, wind, solar radiation, soil moisture and temperature.





Stream & Ground Water Quality



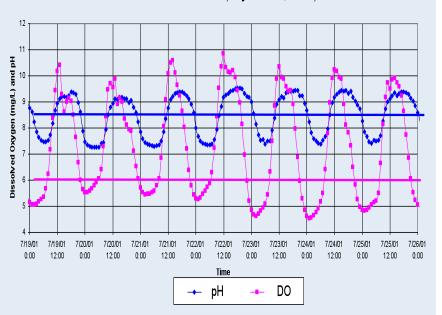
Daily Temperatures of the East Fork Jemez below La Jara (May 8 - Oct. 30), 2001

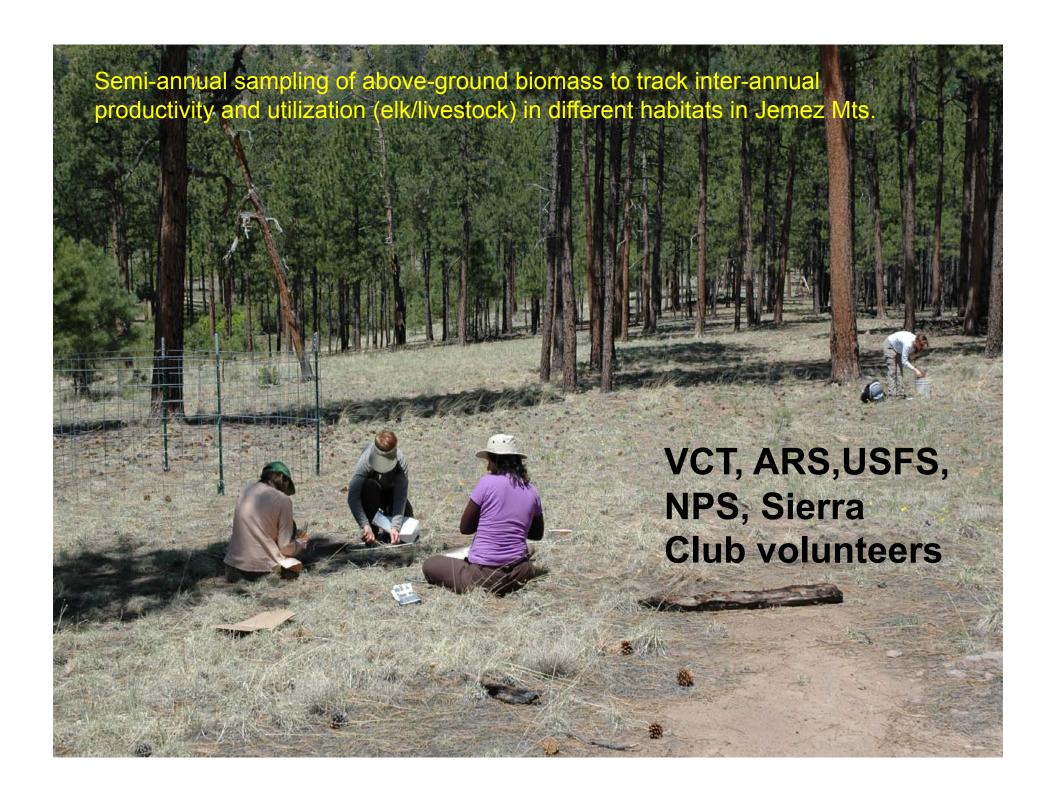
25 20 10 6-May 26-May 15-Jun 5-Jul 25-Jul 14-Aug 3-Sep 23-Sep 13-Oct 2-Nov

Time

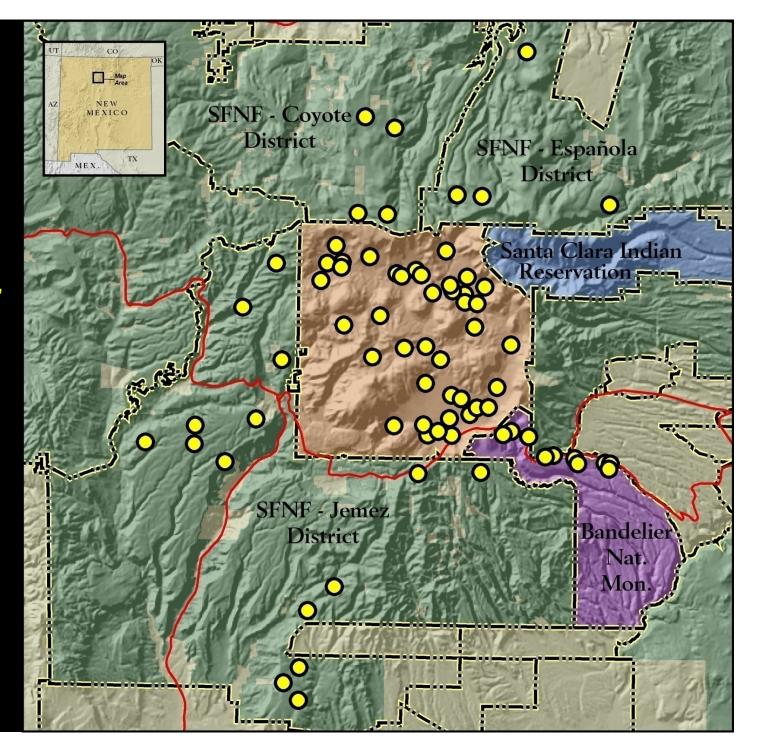


Dissolved Oxygen and pH Levels for East Fork Jemez Below La Jara Creek (July 19 - 26, 2001)





Sample sites for biomass production and utilization span 3 agency land units in Jemez Mts:
Valles Caldera NP, Bandelier Nat. Mon, and three ranger districts of the Santa Fe National Forest.



SAHRA Ponderosa pine hydrology site



Meteorological data



EC fluxes of carbon, energy, water



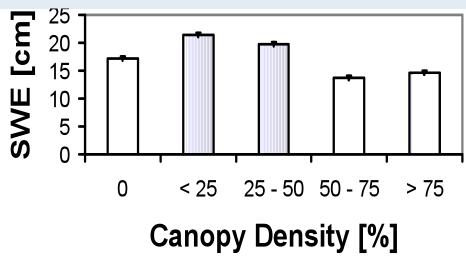
Sap flow sensors, chemistry, isotopes

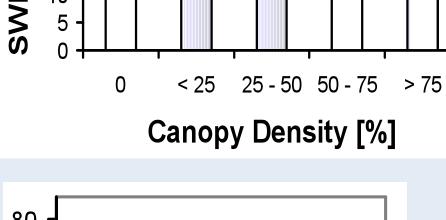
Remote sensing data

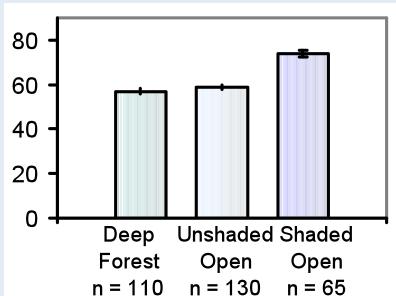


Soil water balance, chemistry, isotopes

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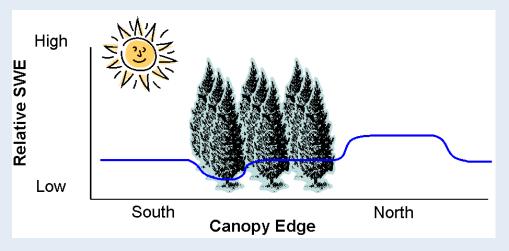




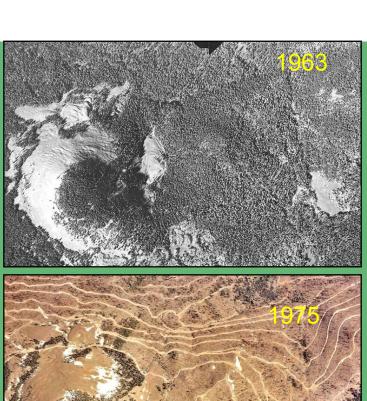
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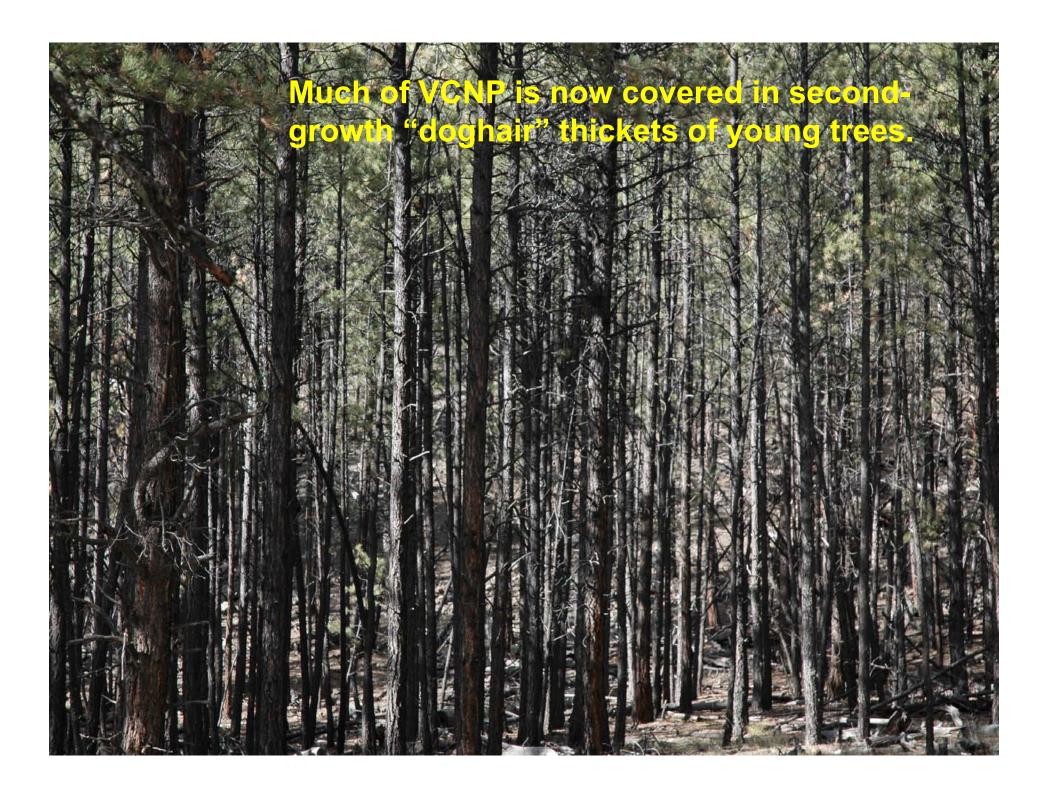
Logging operations in the Jemez **Mountains during** the 1960s through the 1980s converted thousands of hectares of old growth forest to dense secondgrowth forests.



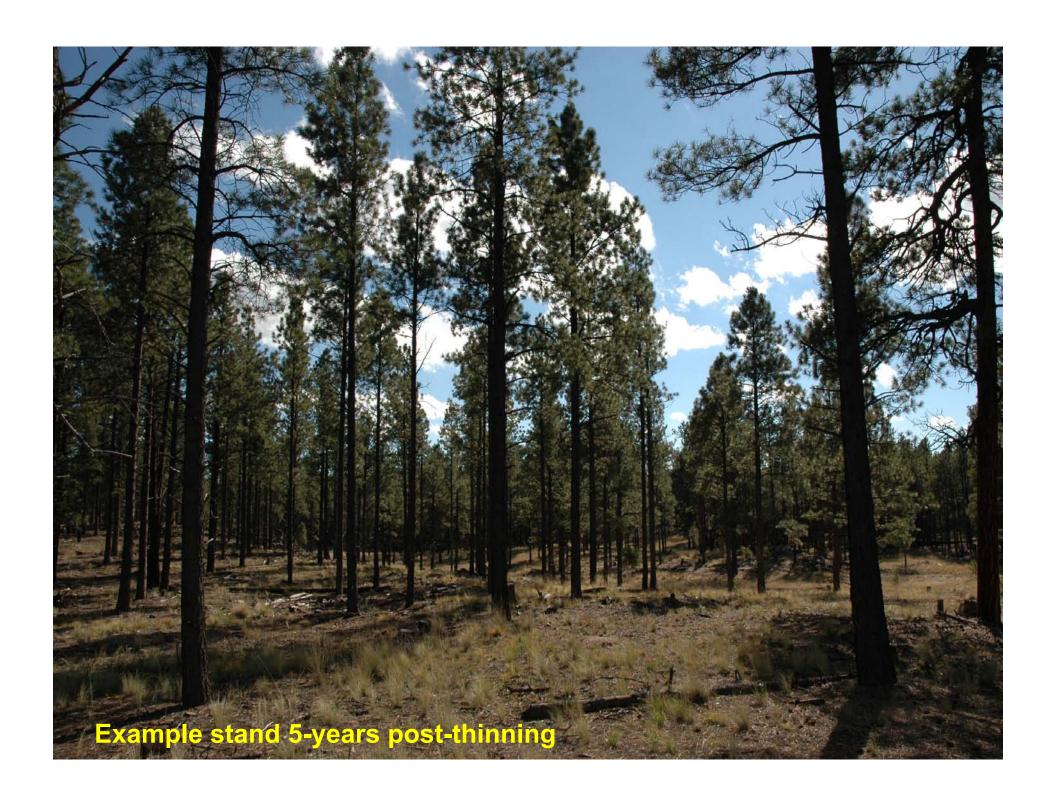


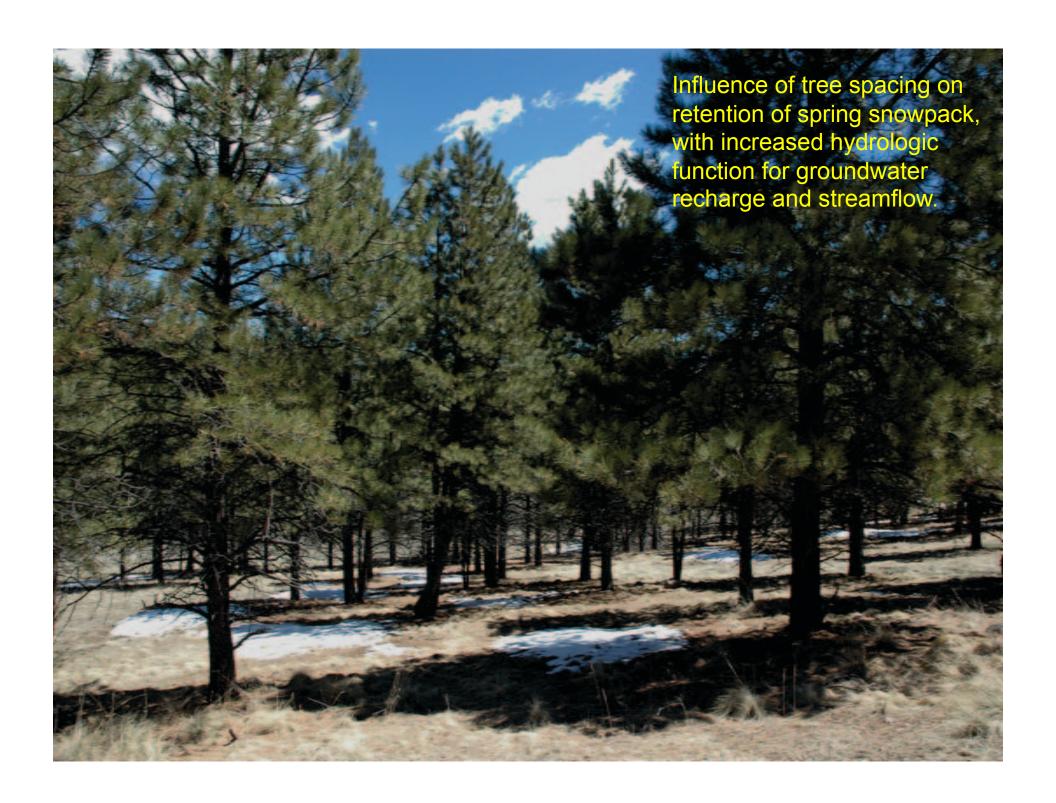










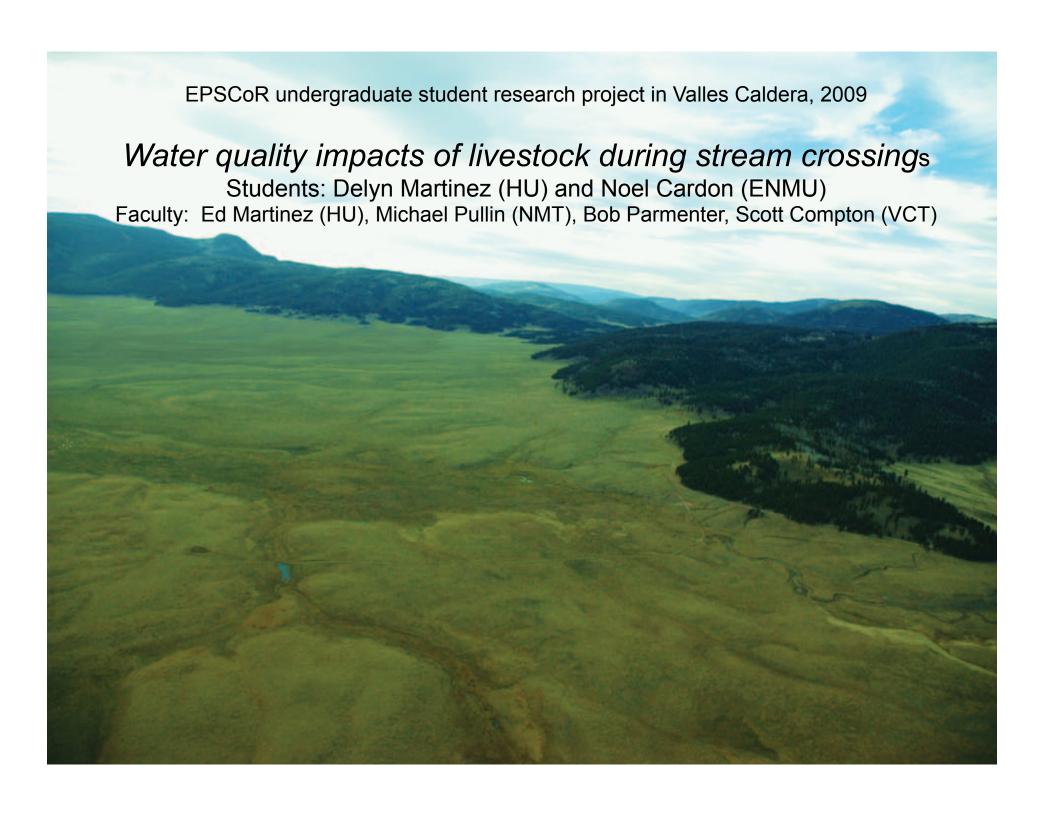


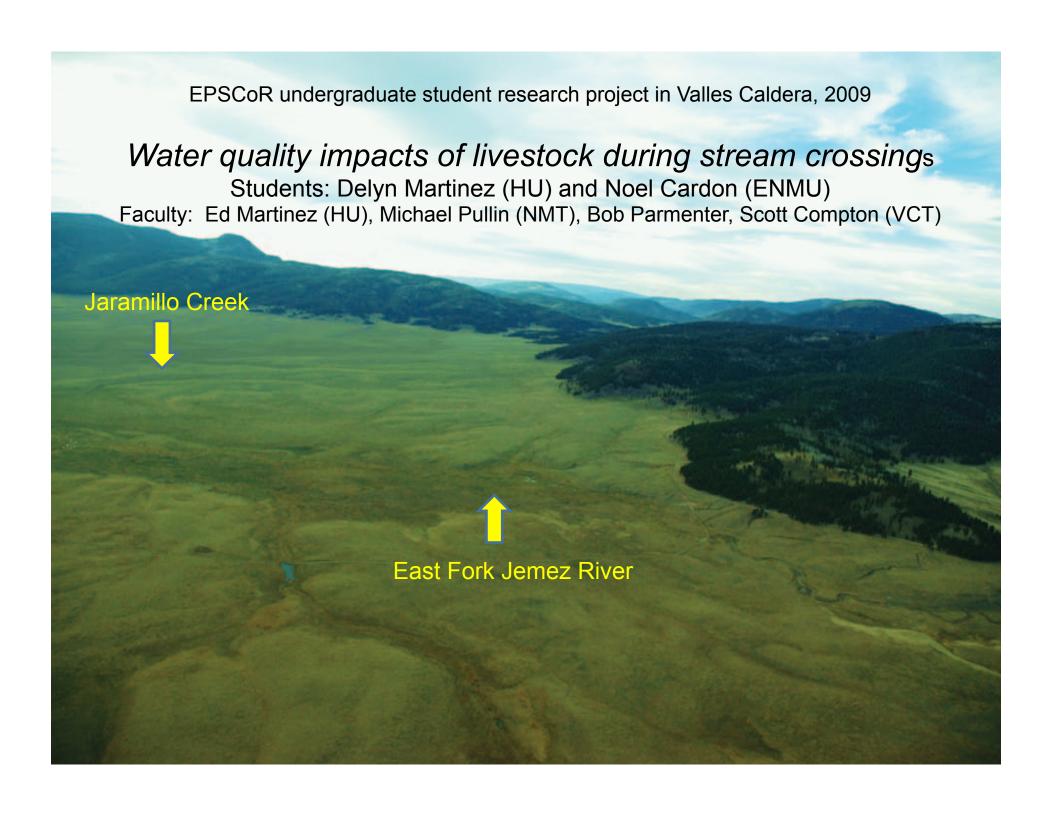
New NSF Grant for a "Critical Zone Observatory" in VCNP and Santa Catalina Mts (Tucson), 5 years, \$4.35 million funding, as part of a 6-site network nation-wide.

"Transformative Behavior of Energy, Water and Carbon in the Critical Zone: An Observatory to Quantify Linkages among Ecohydrology, Biogeochemistry, and Landscape Evolution"

The zone from the treetops to the bottom of the groundwater table has been dubbed the "Critical Zone" because of its key role in processing and cycling water, carbon and nutrients necessary for life.

Lead institution: University of Arizona, Tucson (13 faculty scientists), with collaborating scientists from UNM, LANL, NM Tech, U. Colorado, U. California (Merced), Penn State, Jet Propulsion Laboratory, Desert Research Institute, and the National Center for Atmospheric Research (Boulder, CO).





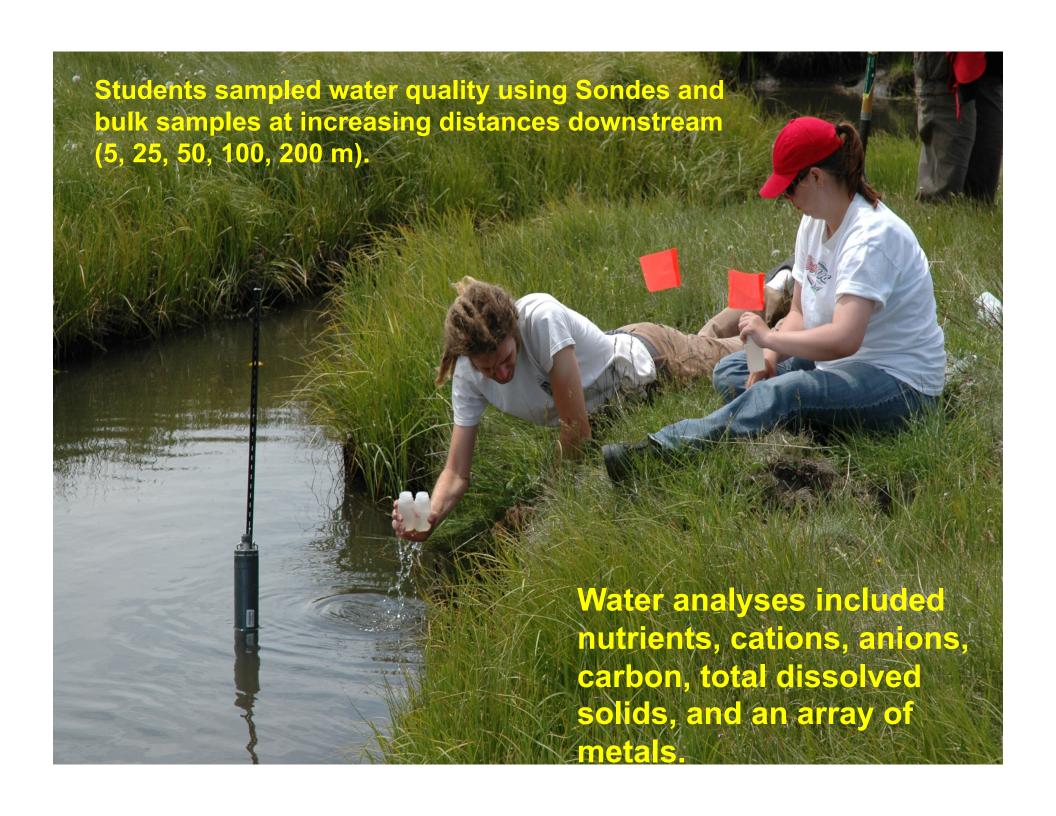


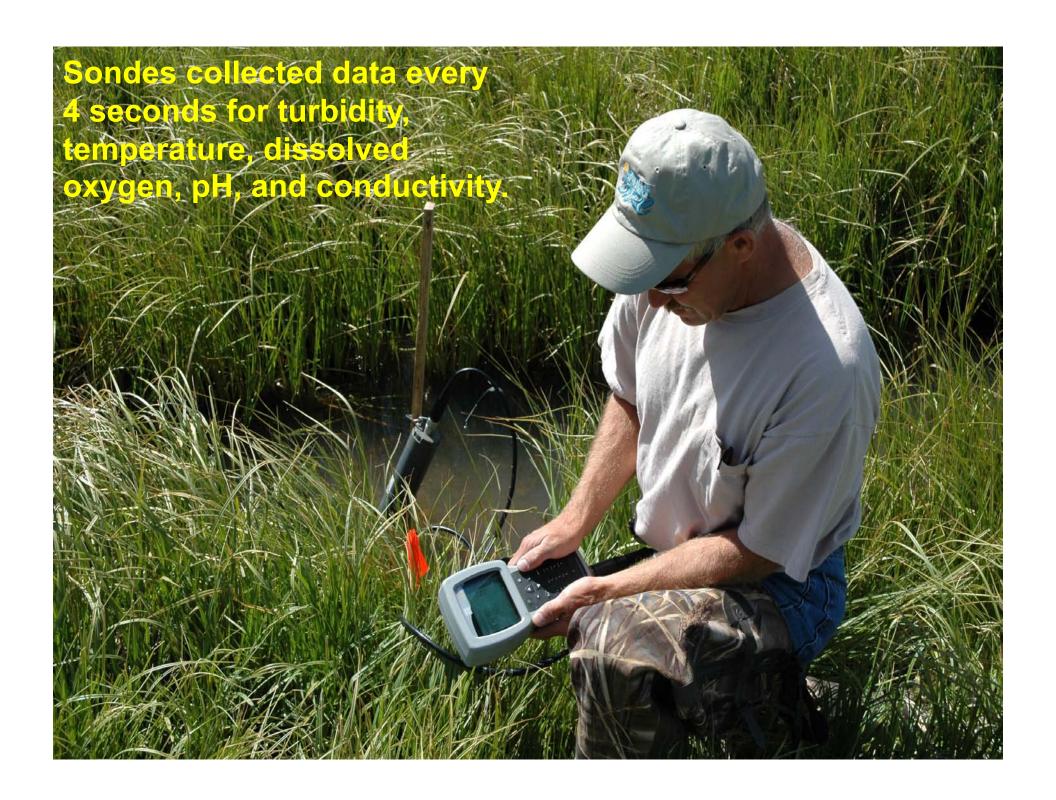












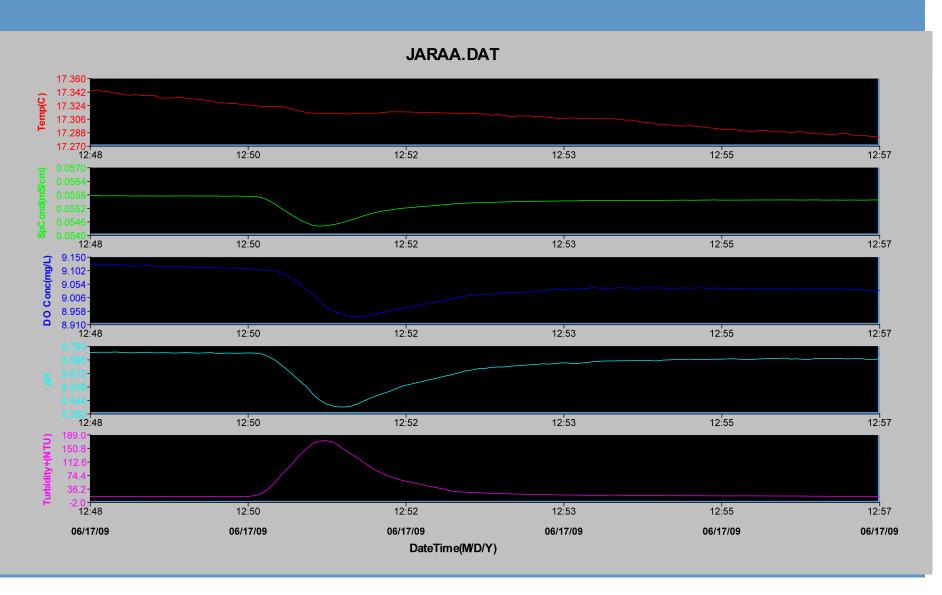


Water samples for nutrients stabilized in field with sulfuric acid; filtered and preserved at VCNP field station; analyzed in labs at NM Tech and Highlands University.

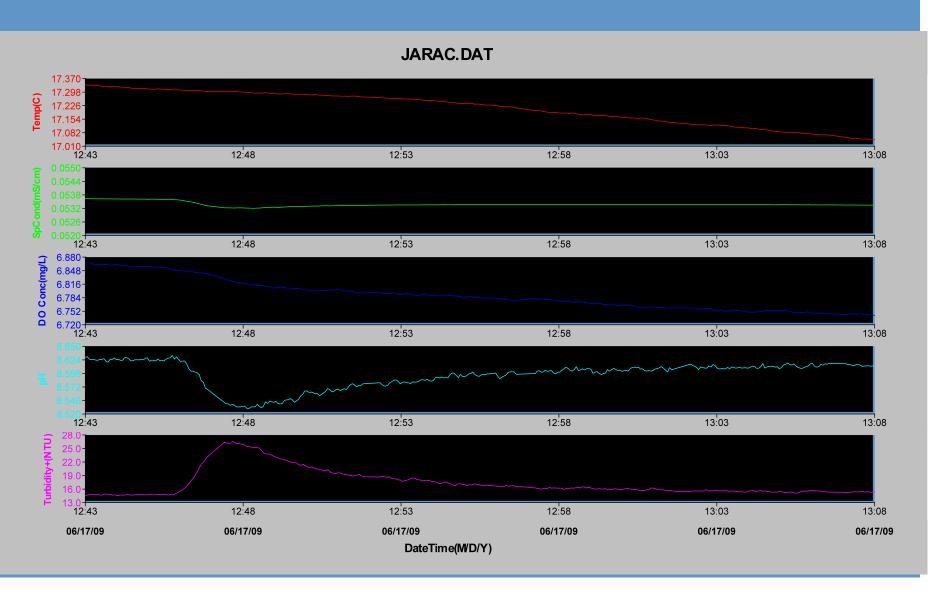




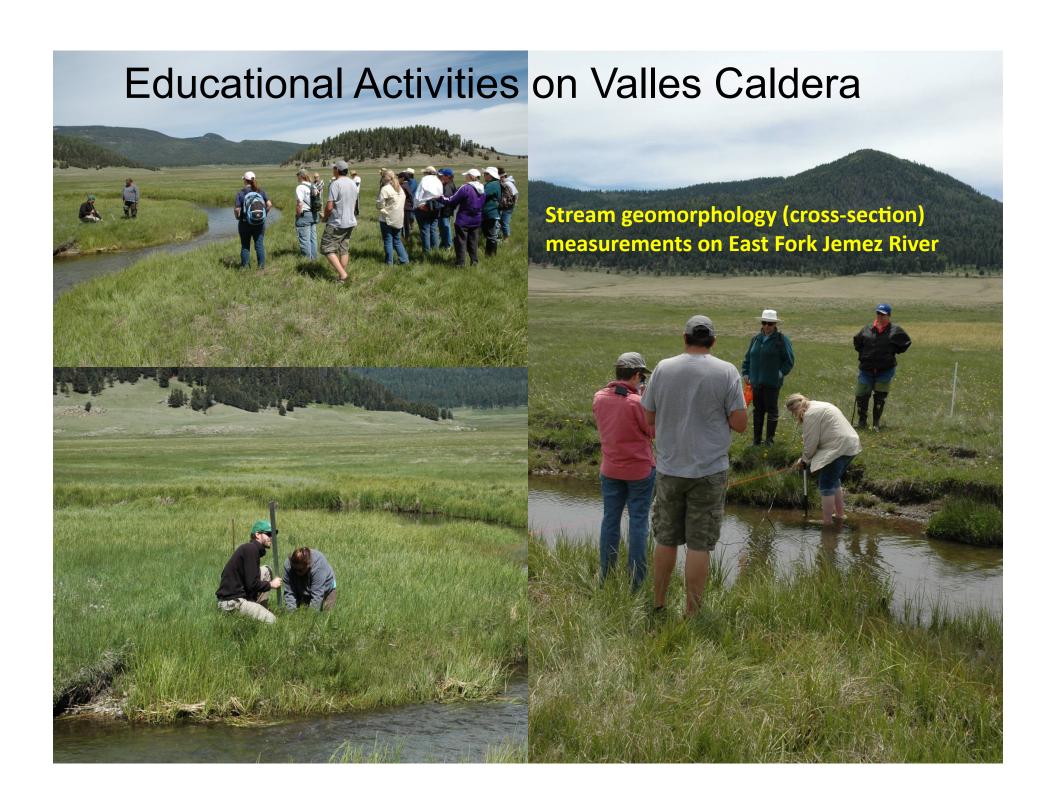
Results of downstream water quality change: 8 horses, 5 m downstream



Results of downstream water quality change: 8 horses, 50 m downstream







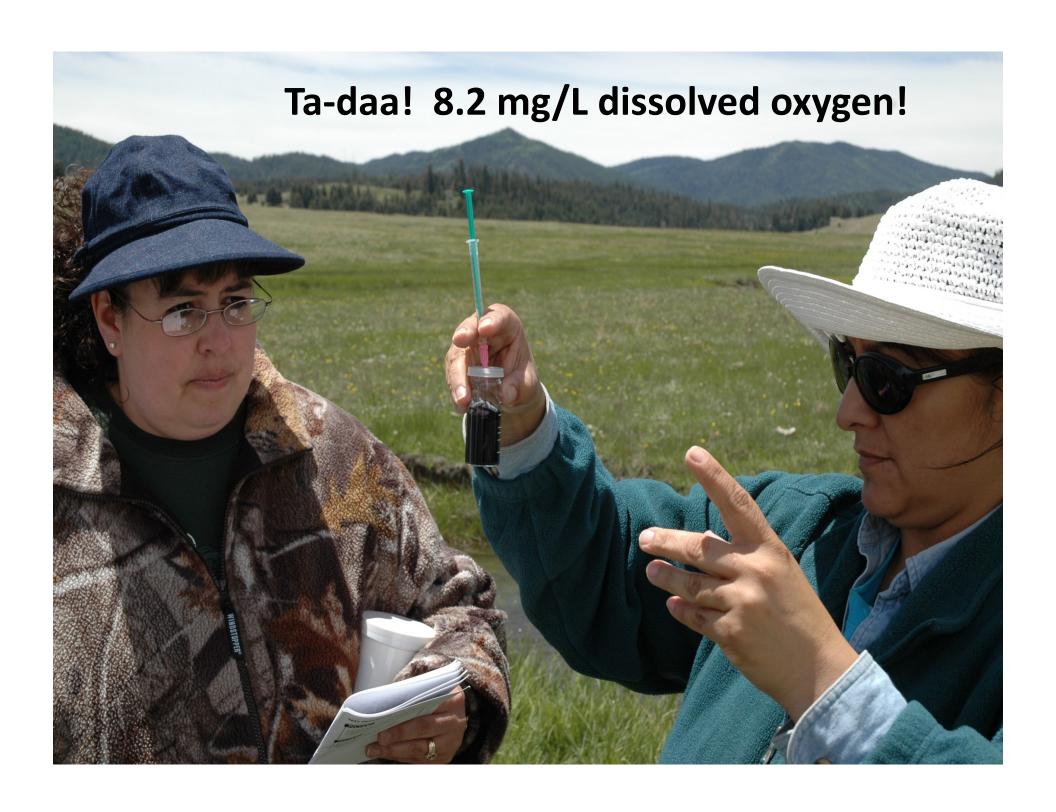




















EDUCATION PROGRAM:

Grant proposal submitted to NSF in August, 2009, for 5-year, \$12.5 million program for enhancing high school science programs in the Northern New Mexico Network for Rural Education.

Includes NM Tech, UNM
Taos, Highlands Univ.,
NNM College, Santa Fe
Institute, UNM EPSCoR
Program, Intel, SAS,
Microsoft, Apple, HewlettPackard, Lockheed
Martin, Boeing, ARA,
Lenovo.

Summer field program based at VCNP for high school teachers and students.

